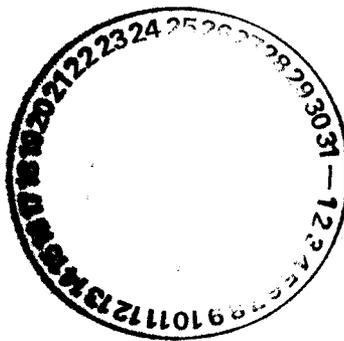




DEPARTMENT OF THE AIR FORCE
27TH SPECIAL OPERATIONS CIVIL ENGINEER SQUADRON (AFSOC)
CANNON AIR FORCE BASE NEW MEXICO

 ENTERED

Mr. Ronald A. Lancaster
Chief, Asset Management Flight
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DEC 22 2009

Ms. Patricia Stewart
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East – Building 1
Santa Fe NM 87505-6063

Dear Ms. Stewart

Cannon Air Force Base, NM is responding to a Notice of Disapproval (NOD) for the Playa Lake (SWMU 103) Corrective Measures Implementation Work Plan, Cannon AFB, New Mexico, dated November 2, 2009 from the New Mexico Environment Department (NMED). Please reference the Attachment for a detailed explanation of each comment.

If you have any questions, please contact Mr. Hugh G. Hanson, Asset Management Flight, at 575- 784-6031 (temporary).

Sincerely,

RONALD A. LANCASTER, YC-03

cc:
NMED (D. Cobrain) w/Attachment
EPA Region 6 (Bob Sturdivant) w/Attachment

RESPONSE TO COMMENTS
PLAYA LAKE (SWMU 103) CORRECTIVE MEASURES STUDY WORK PLAN
EPA ID NO. NM7572124454
HWB-CAFB-09-004
CANNON AFB, NEW MEXICO

Comments by James P. Bearzi, Chief Hazardous Waste Bureau, NMED dated November 2, 2009.

The New Mexico Environment Department (NMED) has received Cannon Air Force Base's (Permittee) *Playa Lake (SWMU 103) Corrective Measures Study Work Plan* dated July 2009 (Work Plan). NMED has reviewed the Work Plan and hereby issues this Notice of Disapproval (NOD). The Permittee must revise the Work Plan based on the comments presented below.

The Permittee must address all comments and submit a response by December 31, 2009. All submittals must be in the form of two paper copies and one electronic copy. The Permittee must also provide an electronic red-line strike out version of the revised Work Plan that shows all revisions made to the Plan.

Comment 1. Section 1.1, Purpose and Scope, Page 1-1:

The permittee states, in the second paragraph, that the Work Plan may be modified based on field observations, site conditions and unforeseen circumstances or conditions. The Permittee may not modify an approved Work Plan without obtaining prior approval from the NMED. Deviations from an approved Work Plan must be documented and explained in the associated report.

Response: Agree. An approved work plan essentially serves as a contract between NMED and Cannon AFB with obligations and responsibilities for both parties. As such, the approved Work Plan will not be modified without prior approval from the NMED. However, any minor adjustments to sampling locations due to unforeseen obstructions, etc., or any equivalent deviations from the work plan that may be necessary will be documented and explained in the post investigation report. Based on this, we will change both occurrences of the word "modified" in the second paragraph of Section 1.1 to "adjusted."

Comment 2. Section 1.3, Regulatory Framework, Page 1-1:

The Permittee refers to a Corrective Measures Study in the title and throughout the Work Plan. However, the objectives of the Work Plan are not to evaluate, recommend or select remedial alternatives. (See the Cannon Air Force Base (CAFB) Hazardous Waste Facility Permit *Attachment 4, Corrective Measures Study Scope of Work*).

The propose work described in the Work Plan constitutes an investigation to define the nature and extent of contamination. (See the CAFB Hazardous Waste Facility Permit *Attachment 3, RCRA Facility Investigation (RFI) Scope of Work*). Because a Phase II RCRA Facility

Investigation (RFI) was conducted in 1995 the Permittee must rename the document to reference that it is a third phase investigation work plan, and not a remedy evaluation.

The Permittee stated that the Work Plan follows the requirements for Cannon's RCRA permit and 40 CFR Part 264, Subpart S, corrective Action for Solid Waste Management Unites. The corrective action requirements of 40 CFT Part 264, Subpart S were never finalized by EPA. The portion of Subpart S that EPA finalized as rule only applies to Corrective Action Management Units (CAMUs). EPA withdrew the May 1996 advance notice of proposed rulemaking (ANPRM) comprising the majority of Part 264, Subpart S in October 1999 [FRL-6452-9]. The Permittee must delete reference to requirements in 40 CFR Part 264, Subpart S, except to the extent the Permittee uses it as guidance.

The Permittee refers to "closure" in several places in the Work Plan. NMED assumes that the Permittee intends to achieve the status of either Corrective Action Complete With Controls or Corrective Action Complete Without Controls and remove SWMU 103 from Table 1 (List of Solid Waste Management Units and Areas of Concern Requiring Corrective Action) of the permit through a Class 3 permit modification. The Permittee should refer to Corrective Action Complete Status instead of "closure". Completion determinations are described in "*Final Guidance on Completion of Corrective Action Activities at RCRA Facilities*" [FRL-7454-7].

Response: Agree. As discussed with NMED at the July 2009 meeting at Cannon AFB, this project was scoped as a corrective measures study. However, we realize that this title is problematic. Therefore, the document title and references in the Work Plan will be amended to Phase III RFI where applicable. The text "Work Plan follows the requirements for Cannon's RCRA permit and 40 CFR Part 264, Subpart S" will be amended to state "Work Plan follows the requirements for Cannon's RCRA permit and 40 CFR Part 264, Subpart S was used as guidance." The word "closure" will be replaced with the text "Corrective Action Complete" where applicable in the Work Plan.

Comment 3. Human Health and Ecological Risk Re-evaluations, Page 3-4:

The Permittee states that sediment and surface water are the media of concern and that "sediment will be analyzed for total petroleum hydrocarbons (TPH) (as waste oil), arsenic, vanadium, silver and selenium while surface water will be analyzed for lead, silver and selenium". To assess the surface water and sediment fully, especially because the surface water in Playa Lake is used for irrigation in nearby cultivated fields, and to determine the final disposition of this SWMU, the Permittee must analyze sediment and surface water for diesel-range organics (DRO) extended for comparison to unknown oil and also volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs) and all target analyte list (TAL) metals. The Permittee is referred to Standards for Interstate and Intrastate Surface Waters, 20.6.4.900 NMAC, Sections C and J. The Permittee is also directed to 20.6.4.12 NMAC, Section F which indicates that chromium analyses of surface water must measure both the trivalent and hexavalent ions. An ecological risk re-evaluation must also include chromium speciation in sediment.

Further, an ecological risk re-evaluation must include data for dioxin/furan/PCB congeners. These compounds were not considered in earlier ecological risk assessments. The Playa Lake (SWMU 103) is bounded by Landfill No. 3 (SWMU 105), Landfill No. 4 (SWMU 104), and Landfill No. 25 (SWMU 97). All three of the landfills were used for burning of various wastes (including fuels, spent fuels, oils, and other organics). The burning of chlorinated compounds results in the formation and release of dioxin/furan congeners. Dioxins/furans are known carcinogens and often drive risk when present. Whether or not remedial action is required can not be determined without a complete understanding of the nature and extent of contamination at the site. The Permittee must analyze water and sediment, using Method 1613b, for the presence and magnitude of dioxin/furan congeners and determine a toxicity equivalency concentration (TEQ).

Response: Comment noted. The samples collected during the Phase I and II RFI's were analyzed for VOCs, SVOCs, TPH, pesticides, PCBs, herbicides, and metals. Re-evaluations of the human health and ecological risk assessments were completed and total petroleum hydrocarbons (TPH), arsenic, vanadium, silver, and selenium in sediment, and lead, silver, and selenium in surface water were determined to be the chemicals of potential concern that warrant additional sampling. (Note: Given that the Playa Lake [SWMU 103] received waste effluent from the former sewage treatment lagoons, it most appropriate to compare TPH to screening levels for waste oil, rather than unknown oil.)

Total chromium has not been detected in surface water at the Playa Lake; therefore, chromium speciation is not warranted for surface water. Conducting a chromium speciation test on the Playa Lake sediments is unlikely to provide additional value. There are no known sources of hexavalent chromium associated with Cannon AFB. Most naturally occurring chromium occurs in the trivalent state (Kabata-Pendias 2001). The total chromium concentration in the sediment is relatively low (95% UCL = 7.79 mg/kg), which is well below conservative screening concentrations for total chromium (e.g., 43.4 mg/kg; MacDonald et al. 2000). Although there were no background sediment samples taken in the vicinity of Cannon AFB, a background survey of sediments has been conducted for Los Alamos National Laboratory (Ryti et al. 1998). The mean chromium concentration in Los Alamos sediment was 5.62 mg/kg which is similar to the mean chromium concentration in Playa Lake sediments (5.91 mg/kg). Also, the presence of reducing metals (e.g., iron and manganese), and the alkaline conditions would likely have immobilized hexavalent chromium, if present, as a tightly bound precipitate in the sediment (Mattuck and Nikolaidis 1996). The absence of chromium in Playa Lake surface water is also evidence that any chromium present is likely to be tightly bound to the sediment. Finally, chromium speciation tests for soil/sediment are currently under scrutiny, as many argue that the results are unreliable (Becker et al. 2006, Berry et al. 2004, Besser et al. 2004, Martello et al. 2007, Walsh and O'Halloran 1996, Zatka 1985). The reliability of the chromium speciation tests is particularly uncertain for low total chromium concentrations, such as those associated with the Playa Lake.

In order for dioxins and furans to form during combustion, a source of chlorine must be present (USEPA 2008); however, there is no chlorine source suspected at any of the three

landfills. In addition, the low precipitation rate associated with this semi-arid region of New Mexico, together with the flat topography and highly permeable soils combine to make surface migration a generally incomplete pathway at Cannon AFB. Landfill No. 3 (SWMU 105), Landfill No. 4 (SWMU 104), and Landfill No. 25 (SWMU 97) were all “cut and burn” landfills, where excavation presumably occurred before burning activities were initiated; burning in a trench or a hole would make the surface migration pathway even more likely to be incomplete. Given the depth to groundwater (nearly 300 feet), the groundwater migration pathway from the landfills to the Playa Lake (SWMU 103) is also very likely to be incomplete. Dioxin analysis was removed from Landfill No. 3 (SWMU 105) and Landfill No. 4 (SWMU 104) analyte lists in 1998 based on analytical results that indicated dioxin was not detected. Only one PCB Aroclor has been detected at the Playa Lake (SWMU 103) and this compound (Aroclor-1248) was included in the ecological re-evaluation for the Playa Lake (SWMU 103), which determined that Aroclor-1248 posed no significant ecological risk to the evaluated receptors in addition to being below human health screening criteria. Based on this, further evaluation of dioxin, furan or PCB congeners is not warranted.

Comment 4. Section 4.2.1, Sediment, Page 4-2:

The second sentence of the paragraph is incomplete.

Response: Agree. The first and second sentence will be combined to state “Sediment metals data will be compared to the established Cannon AFB background levels (W-C 1997) and NMED human health Soil Screening Levels (SSLs) for residential exposure (NMED 2009).”

Comment 5. Section 4.4, Site Conceptual Exposure Models, Page 4-4:

NMED disagrees with the Permittee’s statements that percolation and leaching of wastes to subsurface sediment are secondary chemical release mechanisms and that it is unlikely that contaminants of potential concern (COPCs) in sediments would leach or percolate through the subsurface to ground water since the depth to ground water is greater than 200 feet. The continual presence of water providing hydraulic pressure in this playa may allow percolation of contaminant-bearing water to the aquifer. Playas typically do not have a continuous caliche barrier directly below them because caliche is soluble in acidic rain water and it is leach over time to form percolation pathways. The Permittee must revise its characterization of this potential pathway at this particular playa.

Response: Comment noted. Direct discharges of contaminants to the surface waters of the Palya Lake (SWMU 103) constituted the primary release mechanism. Subsequent mixing and transfer of contaminants from one media to another were secondary release mechanisms. Historical analytical data show that contaminant concentrations in the area of the Playa Lake (SWMU 103) generally reduce significantly with depth, which combined with the depth to groundwater, indicates that percolation of water and contaminants to the groundwater is unlikely. To better illustrate the human health site

conceptual exposure model, we will add Figure 4-1 to the work plan (a copy of this figure is attached).

Comment 6. Section 4.6.1, Derivation of NMED SSLs, Page 4-6:

The Permittee referenced NMED's Soil Screening Levels (SSLs) Revision 4.0, June 2006. NMED has recently published Revision 5.0, August 2009. The Permittee must use the more recent version of NMED SSLs.

Response: Agree. The applicable tables will be updated with the 2009 NMED SSLs.

Comment 7. Section 5.6.2, Field Documentation, Page 5-5:

In the paragraph with the subheading Sample Labeling, the second sentence states, "Samples will be thoroughly homogenized (except in the case of TPH-GRO analysis) and transferred to appropriate sample containers in accordance with the [Quality Assurance Project Plan] (QAPP) QAPP." The QAPP does not describe homogenizing samples. The QAPP defers sampling procedures to Section 5 of the Work Plan. Discrete sediment samples should not be homogenized before being transferred to an appropriate sample container. Sediment sampling is correct described in the Standard Operating Procedure No. 3 in Appendix C, Delete the statement referring to homogenizing samples.

Response: Agree. The text will be modified as follows: "Samples will be ~~thoroughly homogenized (except in the case of TPH-GRO analysis)~~ and transferred to appropriate sample containers in accordance with the QAPP."

Comment 8. Section 4.5, Evaluation of Background Concentrations, Page 4-5:

The Permittee proposes comparing the concentrations of metals in sediment samples to the background soils in the Permittee's *Naturally Occurring concentrations of Inorganics and Background concentrations of Pesticides at Cannon Air Force Base, New Mexico.* Due to the differences in the physiochemical parameters it is inappropriate to compare metals concentrations in sediment to concentrations in unsaturated soils. It would be appropriate to compare sediment samples collected at SWMU 103 to sediment samples collected from a nearby playa that can be demonstrated to be unaffected by anthropogenic activities. The sites must be carefully selected to closely match upgradient soil chemistry found at SWMU 103. The Permittee must identify a nearby playa(s) with similar characteristics, collect a statistically valid number of samples of the water and sediment and provide results for comparison.

Response: Comment noted. In accordance with the response to Comment 6, sediment results will be screened against NMED's Residential SSLs Revision 5.0, August 2009. Because sediment results will be screened against (unsaturated) soil screening values, it is appropriate to use the unsaturated background soil levels.

Comment 9. Surface Water and Sediment Sampling Summary, Table 5-1:

The Permittee must revise Table 5-1 to include filtered and unfiltered surface water samples to be analyzed for metals.

Response: Agree. Table 5-1 will be updated to include both filtered and unfiltered surface water samples.

Comment 10. SOP No. 4, Surface Water Sampling, Appendix C:

The surface water sampling standard operating procedures (SOPs) do not describe techniques and equipment to be used for obtaining filtered surface water samples. The Permittee must provide a description of the filtering techniques and equipment, including the mesh size of the field filter.

Response: Agree. SOP No. 4 will be updated to include a description of the filtering techniques and equipment used to field filter samples.

Comment 11. Screening-Level Ecological Risk Assessment Summary, Appendix F:

Appendix F consists of an Ecological Risk Assessment (ERA). The risk screening conclusion for survival, growth and reproduction of omnivorous aquatic birds and of predatory aquatic birds are “low potential for risk or low to negligible potential for risk”, respectively, for selenium in sediment. However, the conclusions were associated with a high degree of uncertainty because the maximum concentration was detected in a sample that was collected from an area of the lake inaccessible to the endpoint species.

Data used in the ERA were results of Phase I and Phase II RCRA Facility Investigations (RFIs) conducted in 1994 and 1995, respectively. Only four sediment samples were collected in the 1994 RFI, two within the perimeter of the berm and two outside the perimeter of the berm. No sediment samples were collected in the 1995 RFI. The Permittee’s proposed Work Plan includes collection of six sediment samples, five from within the perimeter of the berm and one from outside the perimeter of the berm.

To reduce the high degree of uncertainty, more sediment samples must be collected and the distribution of sediment samples must include areas that are accessible to a wide range of endpoint species. The Permittee must increase the number of sediment samples to at least six within the perimeter of the berm (with at least four of them in shallow surface water accessible to omnivorous aquatic birds and predatory aquatic birds) and at least six outside the perimeter of the berm (with at least four of them at shallow depths accessible to omnivorous aquatic birds and predatory aquatic birds).

Response: Agree. As requested, one additional sediment sample will be collected from within the bermed area (bringing the total number of sediment samples within the berm to six) and five additional sediment samples will be collected from outside the berm (bringing the total number of sediment samples outside the berm to six). All six additional sediment samples will be analyzed for selenium to reduce the uncertainty associated with the risk to omnivorous and predatory aquatic birds.

FIGURE 4-1

HUMAN HEALTH SITE CONCEPTUAL EXPOSURE MODEL
PLAYA LAKE (SWMU 103), CANNON AFB, NEW MEXICO

